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Keijo J. Kinnari

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EXAMINER

PAIK, SANG YEOP

ART UNIT

PAPER NUMBER

3742

NOTIFICATION DATE

DELIVERY MODE

04/30/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 2, 5, 8-11 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holen (US 2002/00287070) in view of view Firmin (US 2004/0253734) or Agee et al (US 2003/0178195).

Holen shows the method and the system claimed including a direct electric heating of a subsea pipeline with an electrical current source, a support device supporting the current source, a first and second electrical connections in contact with the pipeline, and a riser cable having a first and a second electrical conductor for conducting electrical current to the first and second electrical connections, in which the current source provides the current sufficient to cause heating of the pipeline to a desired temperature. But, Holen does not explicitly show its heating temperature that is above the melting point of ice but below the melting point of hydrate, and subsequently applying a second plug-counteracting procedure to remove hydrate plug or ice.

Firmin shows that it is known in the art to use means of chemical injection as well as the pressurization system to remove a hydrate plug, and Agee also shows a known means of depressurization to remove a hydrate plug or ice.

In view of Firmin or Agee, it would have been obvious to one of ordinary skill in the art to adapt Holen with a procedure the combination of, or in sequence of, heating and application of the chemical injection or depressurization to enhance the removing of a hydrate plug or ice in the pipeline to facilitate a more effective flow in the pipeline.

With respect to the recited temperature, Holen shows varying degrees of current and voltage levels, and it would have been obvious to set the temperature at the recited range or any other suitable range that depends on the intended applications, including the temperature above the melting point above the ice for its only removal but below the melting point of hydrate as a matter of routine experimentations.

3. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Holen in view of Firmin or Agee as applied to claims 2, 5, 8-11 and 14 above, and further in view of Ness et al (US 6,328,583).

Holen in view of Firmin or Agee shows the system claimed except for the support device being a vessel.

Ness shows a support device being a vessel from which an electrical cable is provided therefrom.

In view of Ness, it would have been obvious to one of ordinary skill in the art to adapt Holen, as modified by Holen in view of Firmin or Agee with its support device as that of a vessel, as an alternative means, to provide for a mobile support device that can transport its riser cable to different pipeline locations.

Response to Arguments

4. Applicant's arguments filed 3/18/10 have been fully considered but they are not persuasive.

The applicant argues that the present invention could still be used with completely "bare" pipe as distinguished from Holen which is in a good thermal insulation. This argument is not deemed persuasive since there is no claimed recitation of a bare pipe that distinguishes the claimed pipe from that of Holen. The applicant argues that Holen does not describe the possibility of ice plug formation within the pipelines, but it is noted that Holen is also concerned about having a stoppage due to hydrate plugs or wax deposit in the pipe line (see page 1, para [0014]).

The applicant argues that there is no explicit reasoning or rationale for the combination of the prior art. This argument is not deemed persuasive since Holen, as well as the applied art, including Firmin and Agee are in the same field of art or endeavor which is in the field of transporting oil or gas in the subformation or subterranean wherein the applied prior art is concerned about providing an efficient transportation of the oil or gas without blockage due to the formation of deposits, which would include hydrates, wax or ice, in the transporting pipes. Since they are analogous art and are reasonably pertinent to the particular problem with which the applicant was concerned, the motivation to combine the prior art to enhance the removing of a hydrate plug or ice in the pipeline to facilitate a more effective flow in the pipeline is an explicit rationale for supporting a prima facie case of obviousness.

The melting of the only the ice plug is rejected as being a matter of routine experimentation since Holen shows it is known to vary the degrees of the current and

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voltage level which selects a desired heating temperature, and it would have been obvious to one of ordinary skill in the art to provide the melting of the only the ice with a varied control of the current and the voltage source of Holen when desired.

Thus, the applicant's arguments are not deemed persuasive.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to SANG Y. PAIK whose telephone number is (571) 272-4783. The examiner can normally be reached on M-F (9:00-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tu Hoang can be reached on (571) 272-4780. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/SANG Y PAIK/

Primary Examiner, Art Unit 3742